
Engineer a telephone line

Use **Procedure 1** to engineer a digital telephone line.

Procedure 1

- 1 Be sure that cable pair selections meet the following requirements:
 - AC signal loss is less than 12 dB at 256 kHz due to all sources.
 - DC loop resistance is less than 175 ohm.
 - Minimum loop length (mainframe bulkhead to telephone) is 30 m (100 ft).
 - Near-end crosstalk coupling loss is >38 dB at Nyquist frequency of 256 kHz (not an issue for typical 22, 24, and 26 AWG twisted pair cable).
 - No bridge taps are permitted.
 - No loading coils are permitted.
 - Protection devices of the carbon-block and gas-filled type are permitted if the off-state shunting impedance is better than 10 M Ω resistive and less than 0.5 pF capacitive.
- 2 Be sure that the following criteria are met where under-carpet cabling is used:
 - Characteristic impedance is at 256 kHz, 100 ± 10 ohm.
 - Insertion loss is at 256 kHz, <4.6 dB/kft.
 - The next pair-to-pair coupling loss is at 256 kHz, >40 dB.
- 3 For a typical system with 22, 24, or 26 AWG standard twisted-pair cable, the requirements translate to the following allowable loops:
 - up to 915 m (3000 ft) of 22 or 24 AWG cable
 - up to 640 m (2100 ft) of 26 AWG cable

- 4 If the selected cable pair does not work satisfactorily, select another cable pair as shown in **Figure 1**.

Figure 1
Engineer a telephone line (Part 1 of 8)

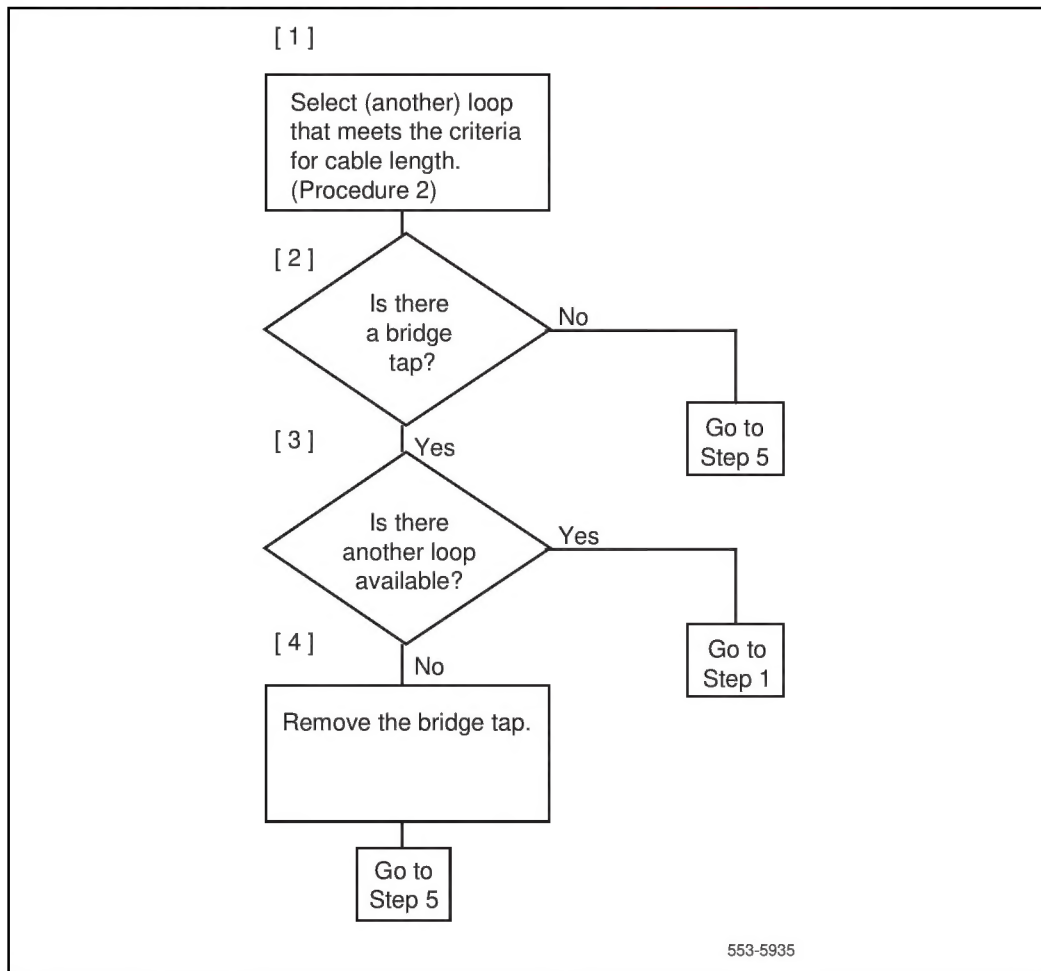
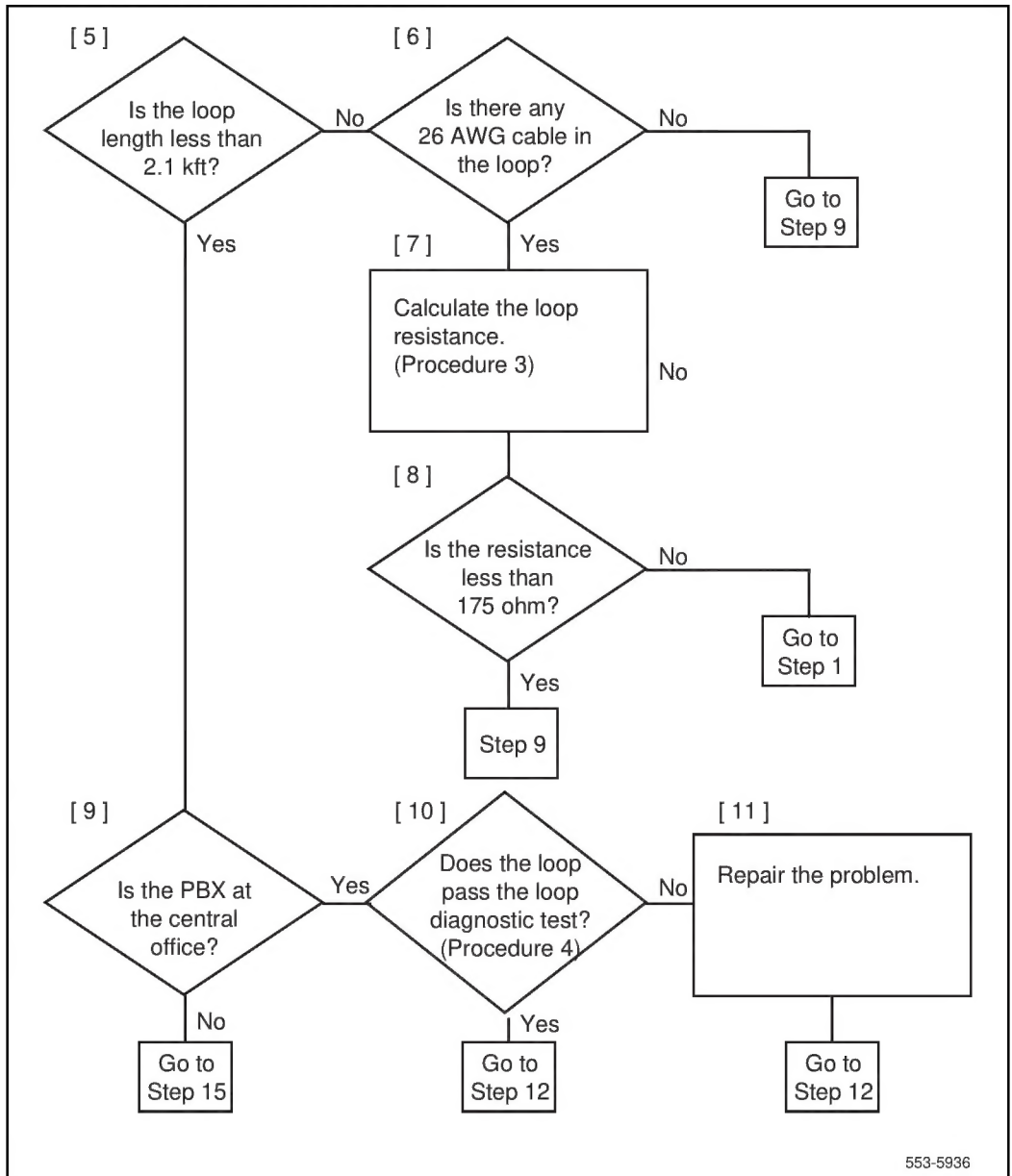


Figure 1
Engineer a telephone line (Part 2 of 8)



553-5936

Figure 1
Engineer a telephone line (Part 3 of 8)

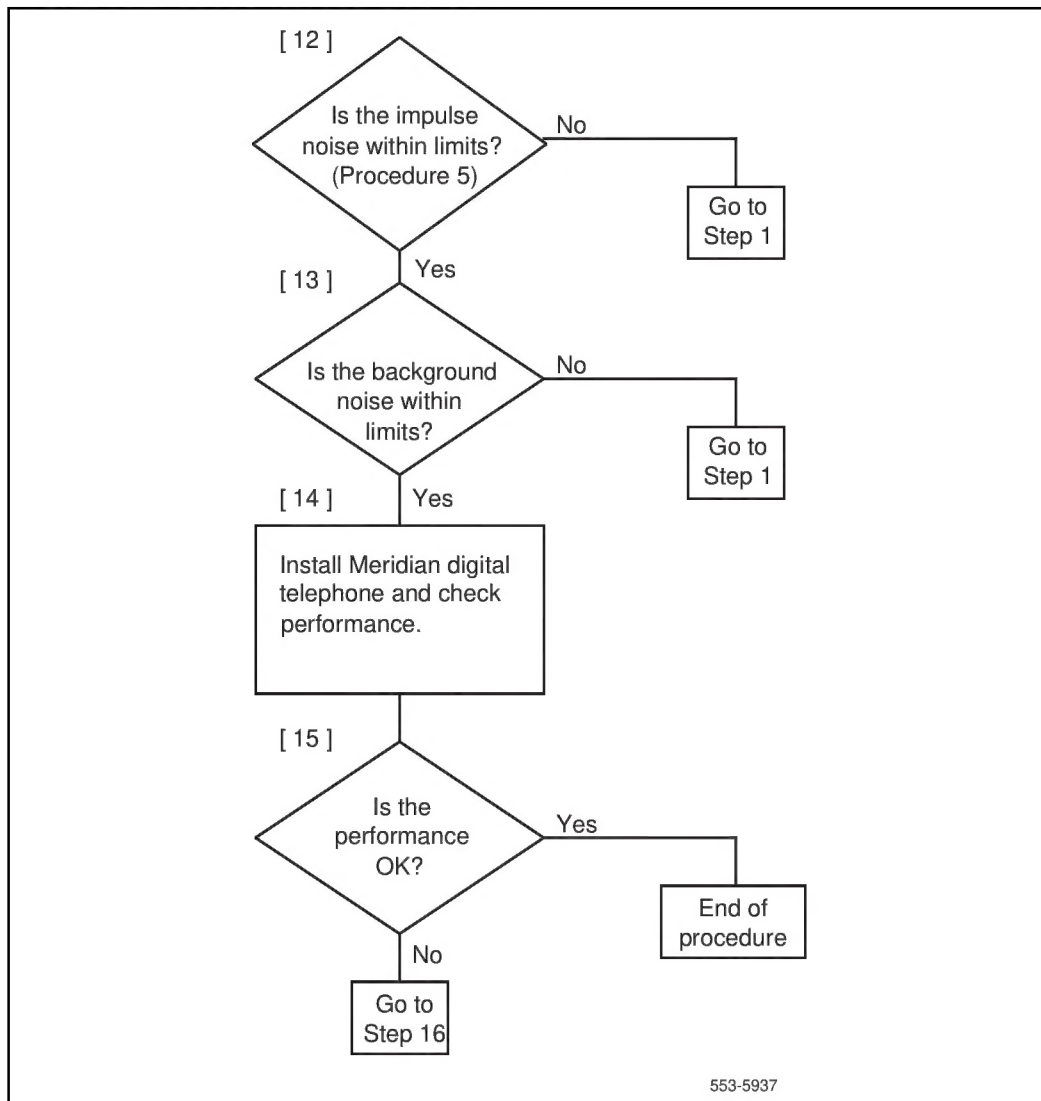


Figure 1
Engineer a telephone line (Part 4 of 8)

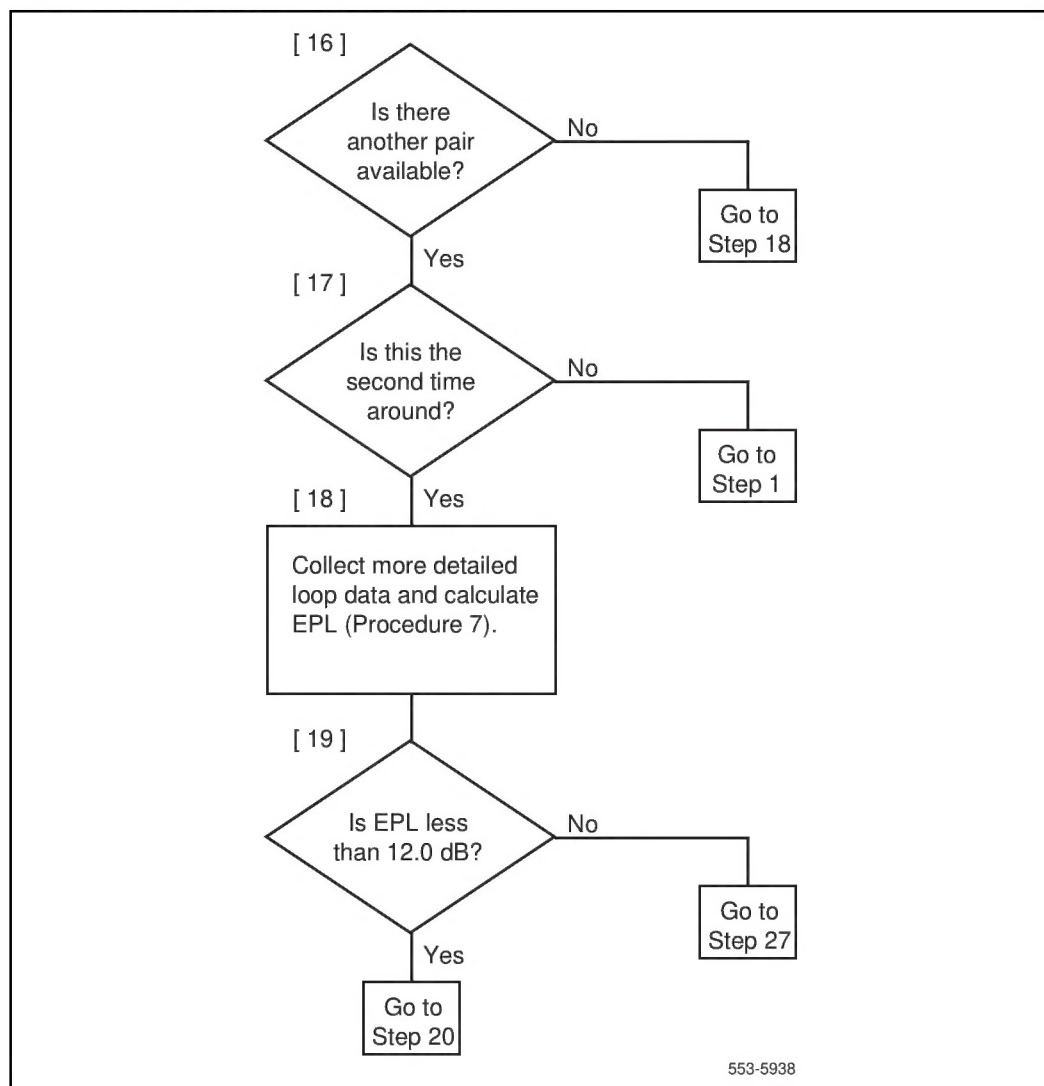


Figure 1
Engineer a telephone line (Part 5 of 8)

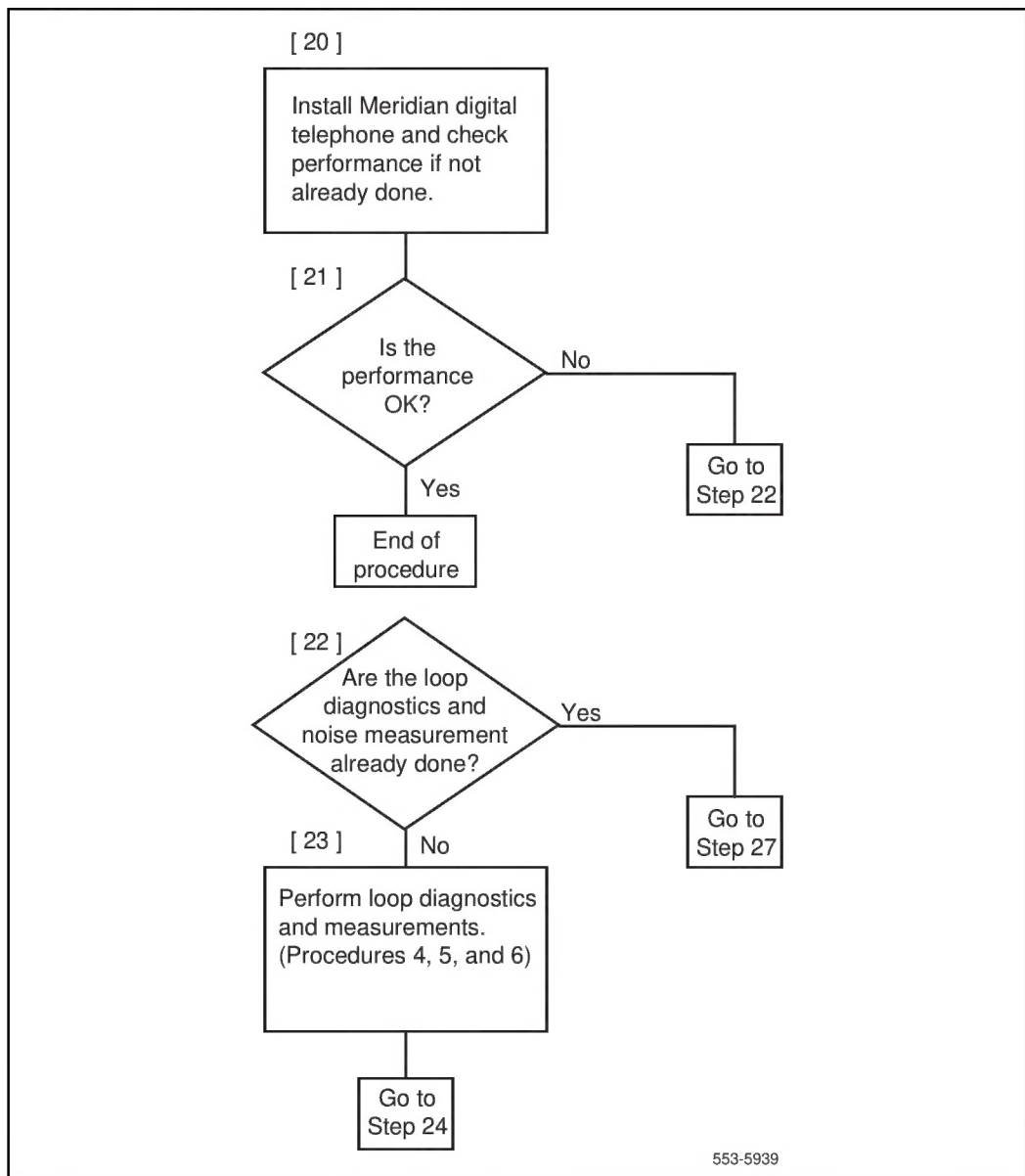


Figure 1
Engineer a telephone line (Part 6 of 8)

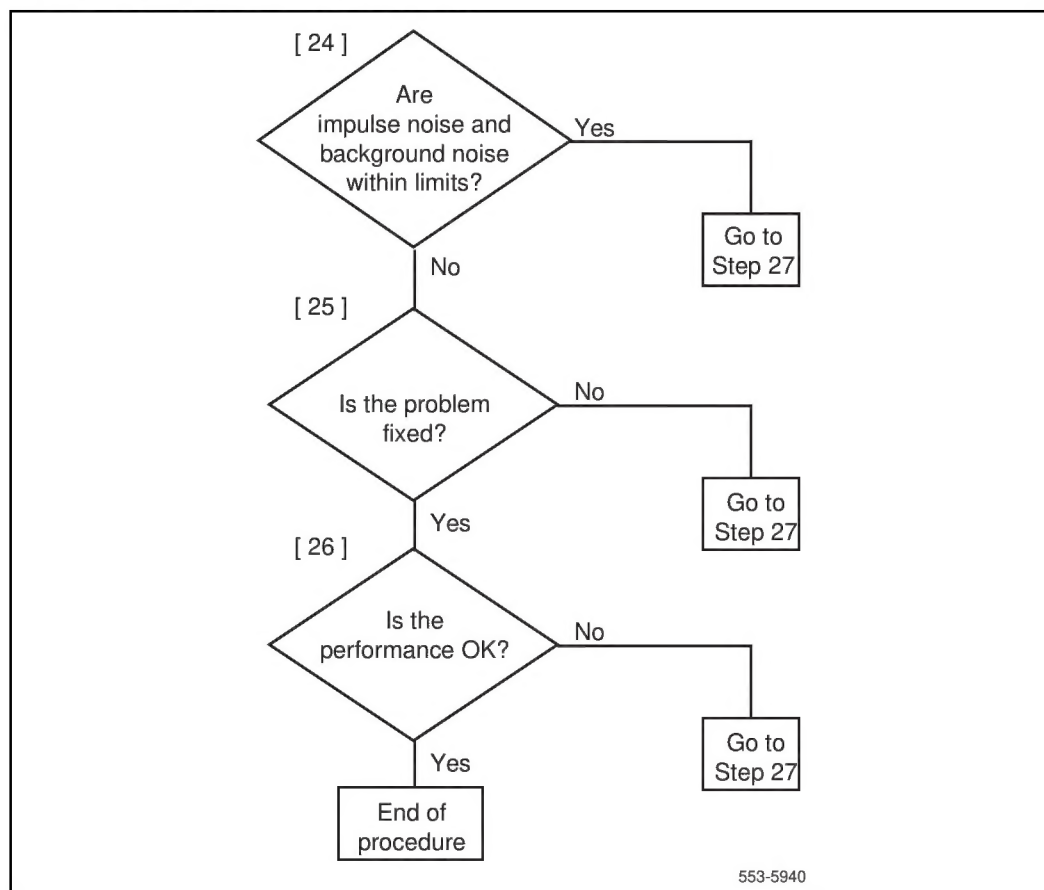


Figure 1
Engineer a telephone line (Part 7 of 8)

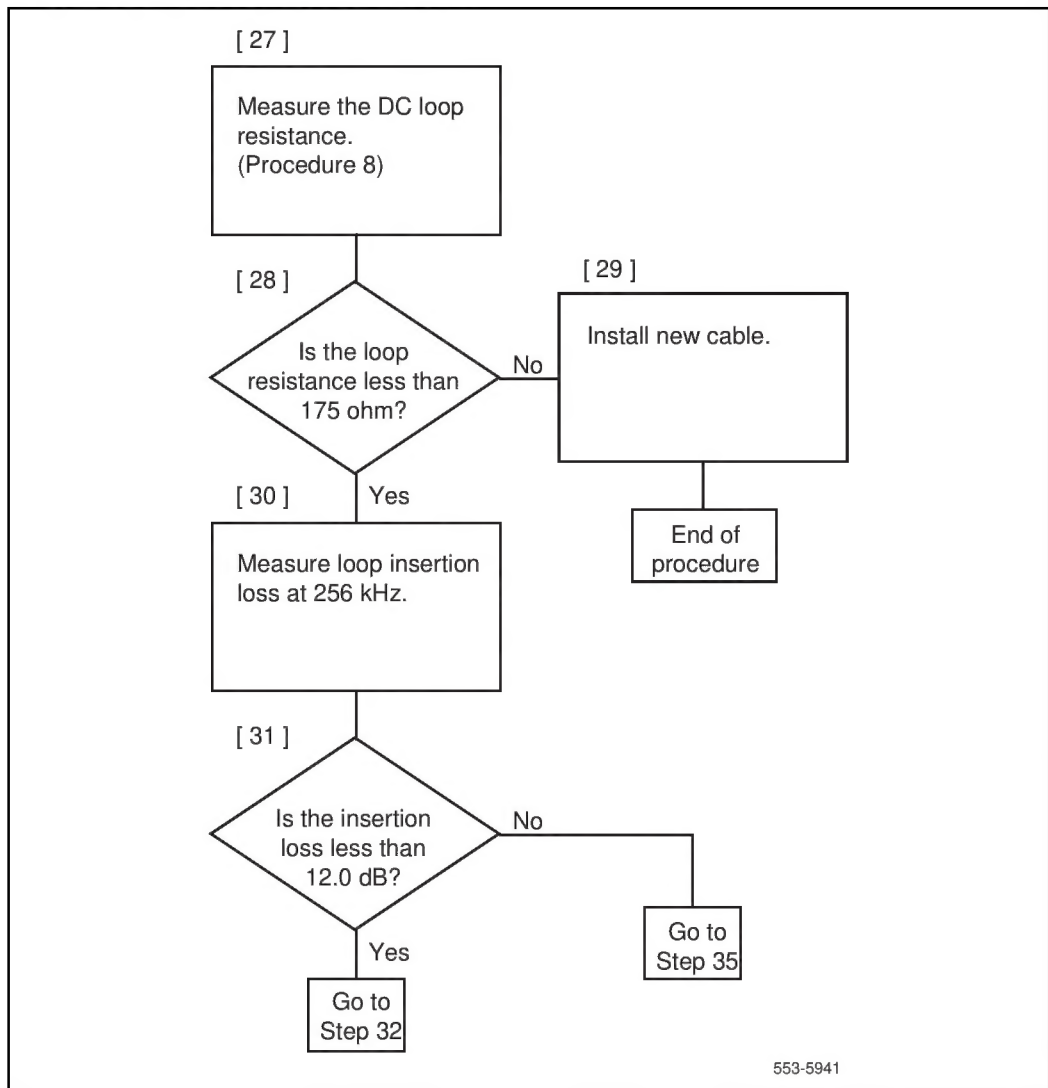


Figure 1
Engineer a telephone line (Part 8 of 8)

